ORD 173-82

17 February 1982

MEMORANDUM FOR: STAT

VIA:

FROM: Chief, Processing and Analysis Technology Group
Office of Research and Development

SUBJECT: Policy & Procedures for Management
of Information Handling Systems

REFERENCE: STAT

1. Summary - The Office of Research and Development disagrees with the scope of the referenced and the scale of system to which it would apply. STAT Application of overly elaborate procedures, designed for big systems development/acquisition, to the small efforts with which we are typically concerned is inappropriate. Costs and schedules would be disproportionately burdened and our larger research objectives would be impacted adversely. These procedures are particularly chilling for innovative systems, developmental in nature, designed to test applicability of new technologies.

We recommend:

(1) raising the limits of exclusion of applicability;

(2) qualifying applicability based on expected operational life;

(3) providing an exclusionary mechanism for R&D systems;

(4) providing an exclusionary mechanism for embedded information systems.

2. Background - We are in sympathy with a centrally charted course for Agency information systems. We are also alert to the danger of regulation stifling progress. There is ample evidence, in the information handling and telecommunications arena, that standardization can become the enemy of innovation. We feel that does not recognize this tension. STAT

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3. Poor information systems most likely stem from a mis-perception of needs. Not long ago, the Defense Science Board tackled this very problem. They concluded tht, particularly for systems that interface directly with the human, the very system of elaborate standardization and review was the culprit. It lengthened the development cycle to the familiar 7-12 year one during which the requirements almost surely had changed. The very specificity of the review ritual precluded necessary evolution. The Defense Science Board analysis argued for a drastically shortened development cycle, recognizing the need for iteration, and argued for process simplification and flexibility. In essence, the evolutionary approach predicates a short design life for each phase and recognizes intended operational life span as a qualification for standards/ review (see recommendation "b", below.)

4. The Defense Science Board's remedy postulated changing needs which are inherently unable to be stated with precision. Where this is not the case, the needs should be clearly stated and form part of a global plan understood by, and subscribed to be all. This plan needs to be created and maintained, and recognized by any set of procedures which would ensure the "correctness" of information systems. For this there is no substitute. [redacted] is deficient in not referencing such a plan. STAT

5. Recommendations - based on the above background, four particular suggestions are made for changing both the spirit and the letter of the policy:

a. Raise the limits which define classes I-III Information Systems for review purposes:

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Class II, for example, as proposed would be triggered by an outlay in one year of [redacted] and would apply to an effort with [redacted] full-time programmers and their amortized computer time. However, the small-team approach, often quite effective, eschews certain management overhead, and rightly so. STAT

Recent major systems, which are running at the [redacted] level are so much larger than the [redacted] trigger for Class I, that that trigger, too, could profitably be raised to avoid such imbalance. STAT STAT

Each set of qualifying resource levels could likely be raised without damaging the spirit of the policy. STAT

b. Exclude from the review process (or modify the review process for) those systems of short expected operational life:

Systems whose designated operational life is less than, say, 3-5 years should be given some measure of relief.

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Systems whose designated operational life is, say, 10-15 years should be specially examined to understand what prevents them from being overtaken by events and/or technology.

c. Exclude from (or modify the review process for) those systems whose basic aim is research, as opposed to the provision of information services.

Where these research projects deal with the application of new technologies to information handling problems, they are in response to coordinated and approved requirements revalidated yearly. If correctly focused they are speculative, and likely to "fail" in the sense of not leading to a follow-on system acquisition/development activity (but, of course, "succeed" in the sense of evaluating fairly the technology.)

Where these projects are used only for providing a research test bed, and not for the provision of an information service to the Agency, they are already subject to a larger requirements and review process and, of course, subjected to a "proof by use" in the course of the R&D activity to which they are subordinated (see also, the proposed embedded system exclusion, below.)

d. Exclude from (or modify the review process for) those systems which are embedded in a larger system, and which do not, of themselves, provide an information service to the Agency.

Principles which guide the review and evaluation of the larger "parent" system should apply. Such embedded systems, which do not have a separate existence, should not be burdened with two sets of (likely contradictory) objectives which are engendered by two independent review procedures.

Of course, if the larger "parent system is itself qualified for such review, then it must abide by the applicable policies.

7. We suggest these recommendations be favorably considered. We would be happy to discuss these issues further if that is desired.

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